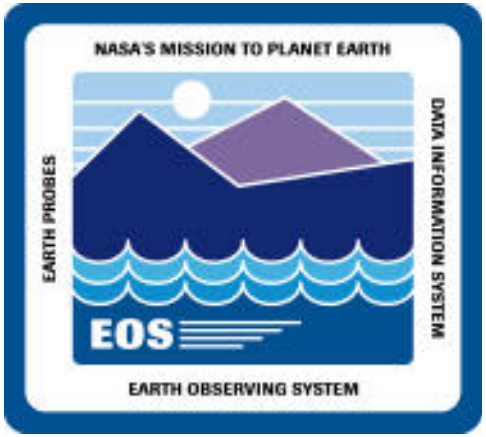

Special Topic: PDPS Database

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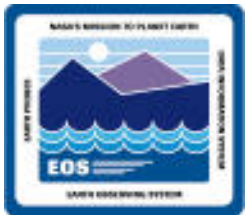
PDPS Roadmap

Special Topic: Production Rules
Capture PGE Profile at **SSI&T**
Describe Production Goals through **Production Requests**
Accept **On-demand** Production Requests
Accept Resource Reservations and Create **Resource Plans**
Planning Production Controls - Create and Activate **Production Plans**
Coordinate Production from Data Arrival with **Subscription** Notifications
Handle L0 **Data Preparation**
Special Topic: Production Subsetting
Realtime **Production** Controls and PGE Execution Monitoring
Special Topic: PGE Exit Handling
Quality Assurance Check Output Products

Special Topic: PDPS Database

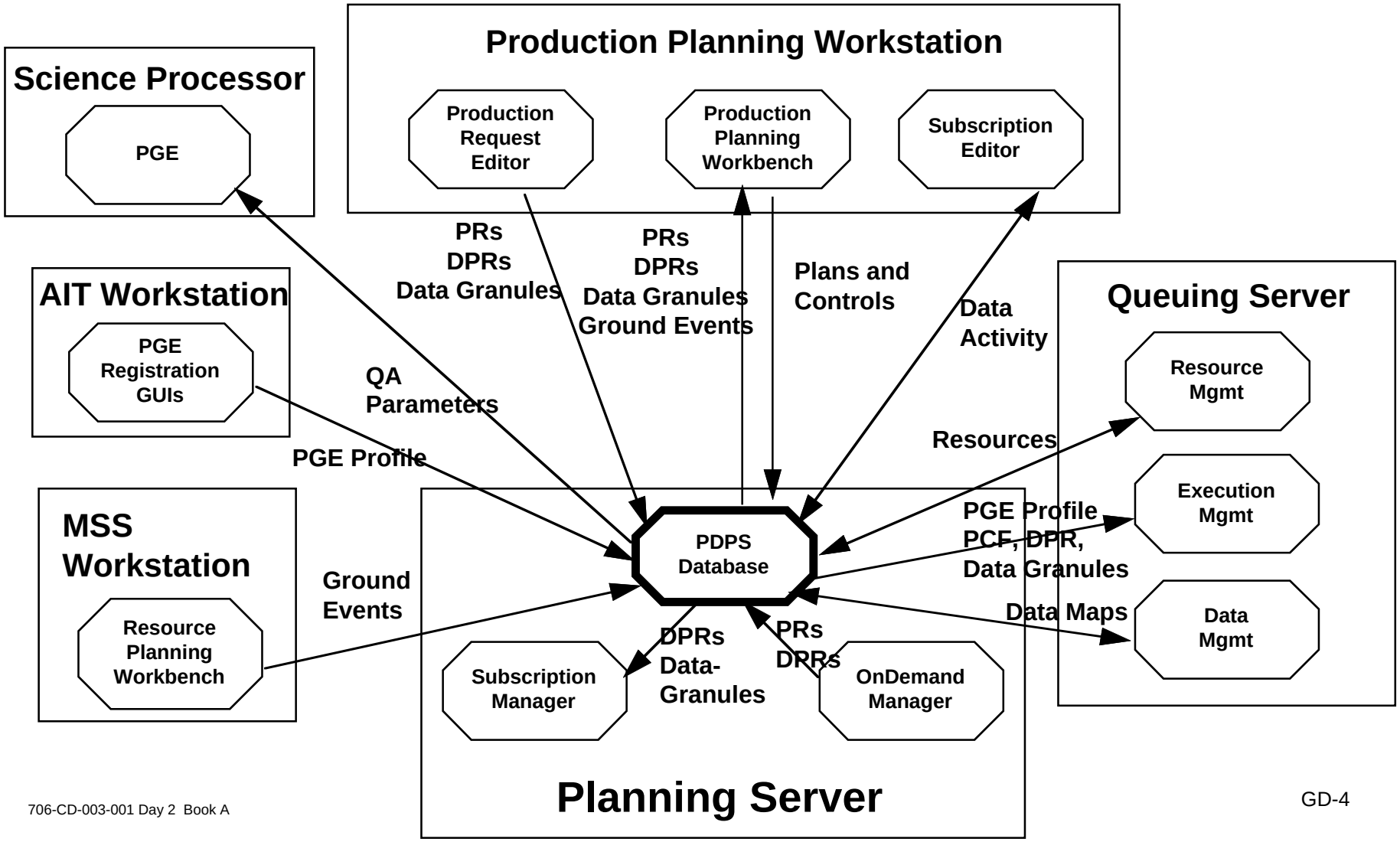
Special Topic: Ancillary Data Pre-Processing

Overview

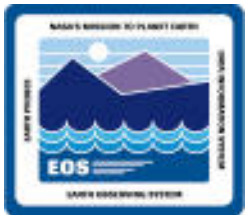


- Used by various CSCs within PDPS to store operational data
- Employs a Sybase relational database management system
- Resides on the Planning server
- Is an ECS Process Framework managed server
- Design reflects the design of PDPS persistent classes in object model
- Database interface classes provide access from the application code

Architecture

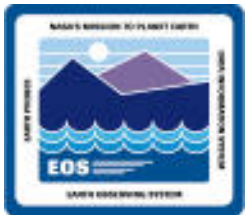


Requirements



- **New requirements in Release B have increased the demands on the database**
- **New database tables are the result of new persistent data classes in the Release B design for PDPS**
- **Changes to Release A database tables due to changes in persistent data class definitions in Release B**

Design



S-Designor tool used to generate a Physical Data Model (PDM)

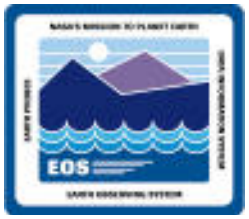
- **Expressed in terms of relational tables**

Object models suggest the layout of the PDM

- **Persistent classes mapped to database tables**
- **Class attributes mapped to table columns**
- **Class relationships mapped to table relations**
  - **Expressed in terms of foreign key migration**
  - **Multiplicity of class relationship determines foreign key placement**
  - **For inheritance, the primary key is shared between parent and child**

Instances of an object class become rows in the corresponding table

Design (cont.)

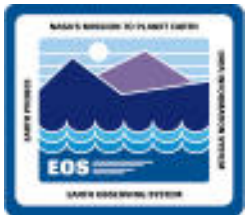


Refinements to table structure

- **Some tables were added**
  - **List types must be “exploded” for normalization**
  - **Many-to-many relationships give rise to join tables**
- **Some columns were added**
  - **Identity attribute may serve as the primary key for efficiency**

Mapping will be documented in 311-CD-002-005

Interface

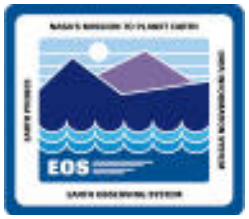


Reuse of database interface classes from Release A

Provides a common interface to the database from the application code

- **One Sybase connection can be shared by multiple database interface objects**
- **Reduces the amount of redundant database code that needs to be written**
- **Programmers do not need to have knowledge of DBtools.h++ to use**

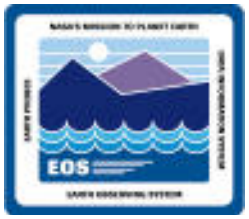
Interface (cont.)



Documented in 305-CD-027-002

- **Object Model 4.3.9**
- **Event Trace 4.5.8**
  - **Updating a database table**

Performance



Indexing of columns to improve the search time

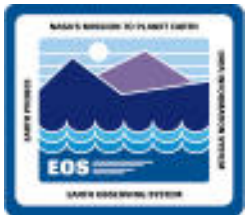
- **Primary and foreign keys are indexed**
- **Additional indexes placed on other columns**
  - **Frequently accessed**
  - **Involving a string type**

Stored procedures will be used to improve execution time

- **Pre-compiled SQL code is stored in the database**
- **Runs faster than a comparable series of SQL statements executed separately**
- **Reduces network traffic**

Distributed disk I/O

Statistics



Sizing estimate

- **Assume 4000 PGEs per day with reprocessing and replication of data**
- **Estimate 4 gigabytes of storage required over a 90-day period**
- **Length of time required to store data will depend on what reports are desired**

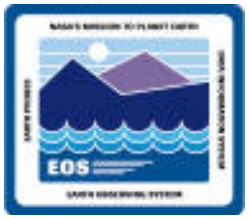
Transaction analysis

- **Same assumptions as for sizing**
- **Estimate between 79 and 118 transactions per second**
- **Depends on the amount of reprocessing**

COTS SW

- **Sybase, version 11**
- **Rogue Wave DBtools.h++ middleware**

Summary



Is used by most CSCs in PDPS to store operational data

Uses a Sybase RDBMS

Resides on the Planning server

Reflects the design of the object model for PDPS

Must meet greater demands than the Release A database

Will require tuning to achieve maximum performance